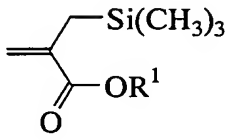
CLAIMS:

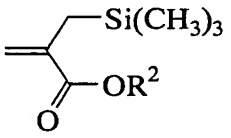
1. A polymerizable silicon-containing compound having the general formula (1):



(1)

wherein R^1 is a hydrogen atom, halogen atom or monovalent organic group.

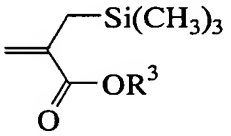
2. A polymerizable silicon-containing ester derivative having an acid eliminatable substituent group according to claim 1, having the general formula (2):



(2)

wherein R^2 is an acid labile group.

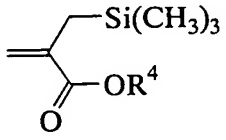
3. A polymerizable silicon-containing ester derivative having a polar group according to claim 1, having the general formula (3):



(3)

wherein R^3 is a monovalent organic group of 2 to 30 carbon atoms containing an oxygen functional group such as hydroxyl, carbonyl, ether bond or ester bond.

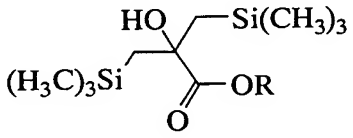
4. A polymerizable silicon-containing ester derivative having a silicon-containing group according to claim 1, having the general formula (4):



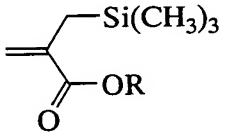
(4)

wherein R^4 is a monovalent organic group of 3 to 30 carbon atoms containing at least one silicon atom.

5. A method for preparing a polymerizable silicon-containing compound having the general formula (B), comprising the steps of reacting an oxalate with a trimethylsilylmethyl-metal compound to form a β-hydroxysilyl compound having the general formula (A) and subjecting the β-hydroxysilyl compound to Peterson elimination reaction,



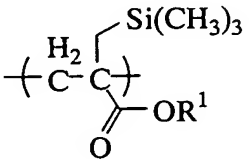
(A)

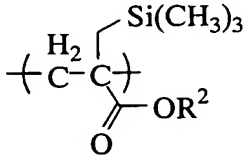


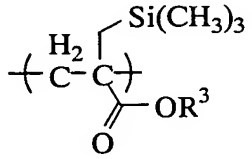
(B)

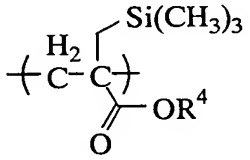
wherein R stands for R^1, R^2, R^3 or R^4, R^1 is a hydrogen atom, halogen atom or monovalent organic group, R^2 is an acid labile group, R^3 is a monovalent organic group of 2 to 30 carbon atoms containing an oxygen functional group, and R^4 is a monovalent organic group of 3 to 30 carbon atoms containing at least one silicon atom.

6. A polymer comprising recurring units of the general formula (1a), (2a), (3a) or (4a) and having a weight average molecular weight of 2,000 to 100,000,


(1a)

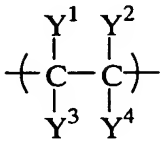

(2a)


(3a)

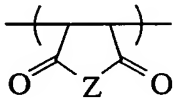

(4a)

wherein R^1 is a hydrogen atom, halogen atom or monovalent organic group, R^2 is an acid labile group, R^3 is a monovalent organic group of 2 to 30 carbon atoms containing an oxygen functional group, and R^4 is a monovalent organic group of 3 to 30 carbon atoms containing at least one silicon atom.

7. The polymer of claim 6 further comprising recurring units of at least one type having the general formula (5a) or (6a):



(5a)



(6a)

wherein Y^1, Y^2, Y^3 and Y^4 are each independently selected from the group consisting of hydrogen, alkyl groups, aryl groups, halogen atoms, alkoxycarbonyl groups, alkoxycarbonylmethyl groups, cyano groups, fluorinated alkyl groups, and silicon atom-containing monovalent organic groups of 3 to 30 carbon atoms, any two of Y^1, Y^2, Y^3 and Y^4 may bond together to form a ring, Z is an oxygen atom or NR^5, and R^5 is hydrogen, hydroxyl or alkyl.

8. A resist composition comprising the polymer of claim 6.

9. A chemically amplified positive resist composition comprising

(A) the polymer of claim 6,

(B) a photoacid generator, and

(C) an organic solvent.

10. A method for forming a pattern, comprising the steps of:

applying the positive resist composition of claim 9 onto an organic film on a substrate to form a coating,

prebaking the coating to form a resist film,

exposing a circuitry pattern region of the resist film to radiation,

post-exposure baking the resist film,

developing the resist film with an aqueous alkaline solution to dissolve away the exposed area, thereby forming a resist pattern, and

processing the organic film with an oxygen plasma generated by a dry etching apparatus.